

PRELIMINARY ASSESSMENT

**PITTSBURG ZINC SITE
PITTSBURG, KANSAS**

CERCLIS Identification Number

KSD98501448
5338



**Kansas Department of Health and Environment
Bureau of Environmental Remediation
Pre-Remedial Unit/Remedial Section
Forbes Field, Building 740
Topeka, Kansas 66620**

September, 1993

**PRELIMINARY ASSESSMENT
PITTSBURG ZINC SITE
PITTSBURG, KANSAS
SEPTEMBER, 1993**

Project Manager:

James E. Alldritt, Environmental Scientist, Pre-Remedial Unit

Site Reconnaissance by:

James Alldritt, Environmental Scientist, Pre-Remedial Unit
Peter Armesto, Environmental Technician, Pre-Remedial Unit

**PITTSBURG ZINC PRELIMINARY ASSESSMENT SITE
TABLE OF CONTENTS**

<u>SECTION</u>	<u>PAGE</u>
SECTION 1. INTRODUCTION.....	1
SECTION 2. SITE LOCATION, DESCRIPTION, OPERATIONAL HISTORY	
2.1 Site Location.....	2
2.2 Site Description.....	2
2.3 Climate.....	2
2.4 Site History and Potential Source Area.....	3
SECTION 3. GROUND WATER PATHWAY	
3.1 Hydrogeologic Setting.....	5
3.2 Ground Water Targets.....	5
3.3 Ground Water Conclusions.....	5
SECTION 4. SURFACE WATER PATHWAY	
4.1 Hydrologic Setting.....	6
4.2 Surface Water Targets and Conclusions.....	6
SECTION 5. SOIL EXPOSURE AND AIR PATHWAY	
5.1 Physical Conditions.....	6
5.2 Soil and Air Targets and Conclusions.....	7
SECTION 6. SUMMARY AND CONCLUSIONS	
6.1 Summary.....	7
6.2 Conclusions.....	7
SECTION 7. REFERENCES.....	9
SECTION 8. FIGURES AND TABLES.....	10

APPENDICES

APPENDIX A - Latitude and Longitude Worksheets
APPENDIX B - Potential Hazardous Waste Site PA Form
APPENDIX C - KDHE/Inorganic Chemistry Lab - Total Metals/ EP Toxicity Reports
APPENDIX D - Site Photographic Record

LIST OF FIGURES

Figure 1 - Site Location Map
Figure 2 - Site Sampling Location Map
Figure 3 - Historical Site Location Map
Figure 4 - Smelter Locations Map
Figure 5 - Pittsburgh and Frontenac PWS Wells Location Map
Figure 6 - Surface Water Pathway Route

LIST OF TABLES

Table 1 - Soil and Surface Water Analytical Results, June 1987
Table 2 - Log of Pittsburgh PWS Well #7

SECTION 1: INTRODUCTION

The Kansas Department of Health and Environment (KDHE) has entered into a cooperative agreement with the U.S. Environmental Protection Agency (EPA) under which the KDHE Bureau of Environmental Remediation (KDHE/BER) will perform assessments of selected contaminated sites in Kansas. The assessments are conducted in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), collectively known as "Superfund". The purpose of these assessments is to determine whether hazardous conditions exist at the sites, to document environmental aspects of the sites, and ultimately to determine whether the sites qualify for further assessments which may ultimately allow them eligible for a federally mandated cleanup.

As part of the cooperative agreement, KDHE/BER has performed a Preliminary Assessment (PA) of the Pittsburg Zinc Site (CERCLIS # KSD 985014448) in Pittsburg, Kansas. Historically, the Pittsburg Zinc Site has been identified as the location of the Robert H. Lanyon Zinc Works (Plant No. 3). The current principal site owner of the property is Walter S. Dickey, Manufacturing Company of Pittsburg, however, there are numerous individuals listed as partial owners of the area that includes the site. The purpose of this PA is to collect information in order to assess the threat posed to human health and the environment that may have resulted from the operation of the Robert H. Lanyon Zinc Works (Plant No. 3) located approximately 1/3 mile east of the post office in Pittsburg, Kansas. Robert Lanyon and his brothers operated smelters at and near the site from 1878 to about 1900. The scope of this investigation included the following activities:

- 1) A review of all available KDHE file data to characterize the site and adjacent property;
- 2) A review of the analytical results from previous sampling efforts performed at the site;
- 3) Production of site maps;
- 4) A site reconnaissance, an evaluation of current site conditions, an interview with the owner of the site, and the collection of historical information in Pittsburg;
- 5) Evaluation of target populations and sensitive environments within EPA-designated target distance limits for the ground water, air, soil exposure, and surface water pathways;
- 6) Preparation of a final PA Report and PA-Scoresheets for the site.

SECTION 2: SITE LOCATION, DESCRIPTION, AND OPERATIONAL HISTORY

2.1 Site Location

The Pittsburg Zinc Site is located in the City of Pittsburg, Kansas in Crawford County (Figure 1). The abandoned zinc works is located at the intersections of Smelter and Second Streets in Pittsburg, Kansas (Figure 2). The legal description is the East 1/2 of the NW 1/4 and part of West 1/4 of the NE 1/4 of Section 29, Township 30 South, Range 25 East, Crawford County, Kansas. The geographic coordinates for the site are 37° 24' 33.5" N latitude and 94° 42' 00" W longitude (Reference 1).

2.2 Site Description

The site is located within a light industrial section of Pittsburg located southeast of the downtown area. Pittsburg State University is located 1/4 mile to the south. The area of the site includes the location of the smelter operation and the surrounding area where slag piles are presently located. The approximate size of the site is 1200 feet by 800 feet or about 22 acres. The smelter furnaces and processing was located at the north end of the site. A large water supply pond was located about 30 feet north of the smelter. Five furnaces were located on site (see Figure 3). Two additional smelters owned and operated by the Lanyon brothers were near the Pittsburg Zinc site property and may have contributed to the existing slag piles (Figure 4).

Presently the site is abandoned and vacant with the exception of the B&B Mini Storage Company (a storage-for-rent business) currently operating along Joplin Street. Additional storage buildings are located in the northwest corner of the site. Most of the rail system into the site area has been removed or abandoned. The site is level except for the depression areas where smelter water supply ponds were previously located.

Throughout the site area are piles of smelter wastes consisting of bricks, broken retorts, slag, and other smelter rubble (see Photographs - Appendix D). Also, trash consisting of solid wastes, appliances, and construction debris, is scattered throughout the site area. The site is overgrown, however vegetation is absent on the slag piles.

2.3 Climate

Crawford County has a typical humid continental climate with large diurnal and annual variations in temperature. Average annual precipitation is 40.6 inches, average daily

maximum temperature is 68.8° Fahrenheit, and the average daily minimum temperature is 46.1° Fahrenheit. The average maximum 24 hour rainfall amount per year is 3.6 inches (References 2 and 3). The prevailing wind direction is southerly.

2.4 Site History and Potential Source Area

In 1878, Robert Lanyon and his brother, S. H. Lanyon, came to Pittsburg, Kansas to consider the possibilities of building and operating smelters in the coal producing area near Pittsburg. With coal readily available and inexpensive, the Lanyons secured a tract of land near Smelter and Second Street, fronting on the south side of the railroad and began the construction of their first smelting plant. Robert Lanyon made contracts with the zinc mining operators in the western states for ore, which was freighted to Pittsburg on the expanding railroad system (Reference 4).

The smelter at Second and Smelter Streets is referred to as the Zinc W'ks No. 3 facility on the historical Sanborn Insurance Maps of Pittsburg, Kansas (Reference 5). The No. 3 plant operated from 1878 to about 1900. The facility employed 80 men and processed about 24 tons of zinc ore per day, producing about 20,000 pounds of spelter, or metallic zinc, per day. In 1881, S.H. Lanyon built and operated a smelter northeast of the Zinc W'ks No. 3 plant. Soon after the two plants were operating, W. and J. Lanyon (two additional brothers) came to Pittsburg. They built a large zinc works south of the S.H. Lanyon smelter (see Figure 4). The four Lanyon brothers developed as many as eight separate smelter operations in Pittsburg during the 1890s. By 1887, Pittsburg led the United States in the smelting of zinc ore. However, as natural gas quickly developed and became an inexpensive energy source in the Iola, Kansas area, the smelters in Pittsburg were soon abandoned and the ore was railed to the rapidly developing smelter works in the Iola area. Many of the Iola gas producers offered free gas for the smelter furnaces and kilns to the operators if they would build or relocate their smelters near the Iola gas fields (Reference 4).

By 1902, all of the Lanyon Zinc Works smelters had been shut down in the Pittsburg area. The Pittsburg Zinc Company and St. Louis Smelter Works, located in the northeast section of Pittsburg, reopened periodically when a profit from smelting was possible from 1905 to 1916 for work related to World War I. However the plant was permanently abandoned in 1916.

In 1987, KDHE/BER began to evaluate the potential environmental risks posed by numerous smelter site located in eastern Kansas. Bill Thornton, Southeast District Geologist for the BER, first visited and sampled the site in June, 1987. The site location at Second and Smelter Streets has been undeveloped for the past 90 years with the exception of a few storage buildings that have been built on the west edge of the property. Bill collected two surface water samples and one soil/slag sample from the site (see Figure 2). The samples were analyzed for total heavy metal content and the soil sample was tested for EP toxicity levels. The results are reported in Table 1. Total metals analysis for the soil showed lead at 3,759.0 mg/kg (parts per million) and cadmium at 41.99 mg/kg. EP toxicity analysis indicated the lead and cadmium levels below the EP Toxicity action levels. The total metals analysis for one of the two surface water samples showed lead at 100 $\mu\text{g/l}$. The second surface water sample was free of contaminants. Both water samples were unfiltered prior to analysis. The Pittsburg Zinc Site was listed on the KDHE/BER Identified Site Listing (ISL) and was recommended for further inspection at a low priority (Reference 6).

On September 28, 1992, Bill Thornton received a call from Mr. Phil Brooks of Pittsburg, a local developer, concerning trenching work to be done at the site. Mr. Thornton stated that he wished to be present to inspect subsurface soil conditions in the open trenches. Mr. Thornton then called Mr. Dave Clark of the Santa Fe Railroad. Santa Fe still owns right of way property that is included as part of the Pittsburg Zinc Site, although the actual rails have since been removed.

On October 1, 1992, Bill Thornton returned to the site to observe trenching being conducted by Mr. Phil Brooks, who was involved in the construction of the B&B Storage Company units. A metallic material resembling metal oxide was observed in a back hoe trench. Mr. Brooks was considering whether to purchase the property and Mr. Thornton advised him of potential liability associated with owning contaminated property.

On September 9, 1993, Jim Alldritt and Peter Armesto of the KDHE/BER in Topeka, revisited the site to evaluate current conditions and to photodocument conditions at the site. During the reconnaissance, the site was inspected and an accurate site map was sketched. The Pittsburg State University library provided historical information about the site and general information on the local smelting industry in Pittsburg. Current activities on the site property includes the recently expanded B&B storage facility. It appears that a motor-cross country bicycle trail has been developed on the site by local youths from Pittsburg.

SECTION 3: GROUND WATER PATHWAY

3.1 Hydrogeologic Setting

The City of Pittsburg is built upon an outcrop of the Cherokee shale, of Pennsylvanian age. The Pennsylvanian formation overlies Mississippian aged rocks: the contact is approximately 240 feet deep within the Pittsburg city limits (Reference 7). The PWS Well #7 log shows the Mississippian aged rocks consist mostly of cherty dolomite, limestone, and some shale (see Table 2). Below the Mississippian formations, at a depth of 600 feet, lie Ordovician aged rocks consisting mainly of cherty dolomite, sandy dolomite, shale, and sandstone. The Ordovician formations include, in descending order, the Cotter dolomite, Jefferson City dolomite, Roubidoux dolomite, Gasconade dolomite, and Van Buren formation. The first three constitute the main water bearing formations and the Roubidoux is regarded as the best water-bearing formation of the three. Depth to the Roubidoux contact is approximately 985 feet below the surface at Pittsburg. The Roubidoux dolomite comprises interbedded dolomite, sandy dolomite, and partly cemented sandstone. The Pittsburg PWS wells are multi-screen to pump water throughout the Ordovician rocks from 600 to 1,050 foot depths (Reference 8).

3.2 Ground Water Targets

There are no primary drinking water targets in the site area. The Pittsburg PWS Well #7 located about six blocks northwest from the site. There are 27,093 secondary drinking water targets within the four-mile radius from the site (Reference 9). Eighty six percent of the secondary targets is the population of Pittsburg, Kansas, 23,424 persons, that utilize the Pittsburg PWS. An additional 3,669 individuals using the Frontenac PWS and private domestic wells that are approximately three and one half miles north of Pittsburg but remain within the four-mile radius of the site (Reference 10). Figure 5 shows the location of the PWS wells within the four-mile radius of the Pittsburg Zinc site.

3.3 Ground Water Conclusions

The ground water use within the City of Pittsburg for drinking water purposes is limited to the PWS wells which are located in the City of Pittsburg (see Figure 5). The wells are screened at depths exceeding 600 feet. The likelihood of possible contamination of the ground water resulting from leaching of the slag residual piles on site is remote. The aquifer is somewhat protected from surface contamination by its relative depth from the ground surface and the low potential for leaching of the residual smelter wastes.

SECTION 4: SURFACE WATER PATHWAY

4.1 Hydrologic Setting

The site is approximately 1/4 mile from an intermittent stream that flows into claypits (ponds) before reaching East Cow Creek, a perennial tributary stream of Cow Creek. The surface water pathway route leading to East Cow Creek is shown in Figure 6. Surface drainage flows southeasterly from the site or remains in depressed areas within the south and east sections of the site. The former pond area north of the smelter site appears to retain surface water periodically. The site is within the 100-500 year floodplain of the Cow Creek drainage basin (Reference 1).

Runoff from the surface slag piles resulting from the smelter operations scattered about the site have the potential to contaminant surface water. However, the on site surface water is not a drinking water source and has very limited use or potential for human contact.

4.2 Surface Water Targets and Conclusions

There are no drinking water intakes located within 15 downstream miles from the site (Reference 10). Drinking water is supplied from ground water sources within the four-mile radius from the site. Cow Creek and its tributaries are used for swimming, fishing, and other recreational purposes. There are no surface water targets at risk from the residual slag piles remaining from the smelter operations.

SECTION 5: SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

The soil exposure migration route is typically the route of concern for abandoned smelter sites. Currently the site consists of only building foundations, abandoned dismantled railroad ties, several slag piles, and limited solid waste (local trash). The site is not fenced and is readily accessible to the general public either by foot or vehicle. There is evidence that local children use the site for bicycle/recreational activities. The stressed vegetation appeared to be restricted to the slag piles of concentrated wastes (References 6 and 11).

5.2 Soil and Air Targets and Conclusions

The estimated number of workers, or people that may walk onto the site property, may be estimated between 1-100 due to the sites accessibility, This estimate includes both the people using the self storage facility, and the those accessing the storage trailers in the northwest area of the site. The likelihood of an soil exposure and/or air pathway risk at this site is moderate due to the fairly stable state of the waste piles after sitting for more than 90 years. Although there are approximately 28,976 secondary air targets within the four mile radius, the direct exposure to the surface material appears to be a more serious threat than the air exposure route of contamination (Reference 11).

SECTION 6: SUMMARY AND CONCLUSIONS

6.1 Summary

Analytical results from soil sample collected on site indicate hazardous levels of lead are present in soil and slag piles presently on site. An on site surface water sample with lead at levels exceeding the MCL suggests the potential for off site migration may exist.

The amount of contaminated soil/solid material on site has not been accurately measured, however, an estimated several hundred cubic yards of material is present. The site is accessible to the general public and is apparently used by local individuals for recreational purposes. The site is currently used illegally as a dumping site for trash and other types of solid wastes.

6.2 Conclusions

Conclusions of the Preliminary Assessment are based on historical analytical sampling data collected by the KDHE, a recent site visit, and a review of the files developed for the site. Due to past smelter operations at the site, solid wastes and soils are contaminated with lead and cadmium. Lead has been detected from at least one surface soil/slag sample at levels which would cause it to be classified as a hazardous waste. However, EP Toxicity analysis indicated that the lead and cadmium have a low potential to leach and that the inorganic elements of the wastes appear to be fairly stable. The extent of the contaminated soils and waste piles is currently unknown but are estimated to be several hundred cubic yards of potentially hazardous soil/slag material.

Due to the depth that the PWS wells are screened, greater than 600 feet from the surface, contamination of the aquifer of concern in the site area by leaching of the smelter waste piles does not appear to be an threat to the water quality. A surface water sample from on site has shown elevated levels of lead present.

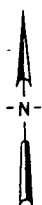
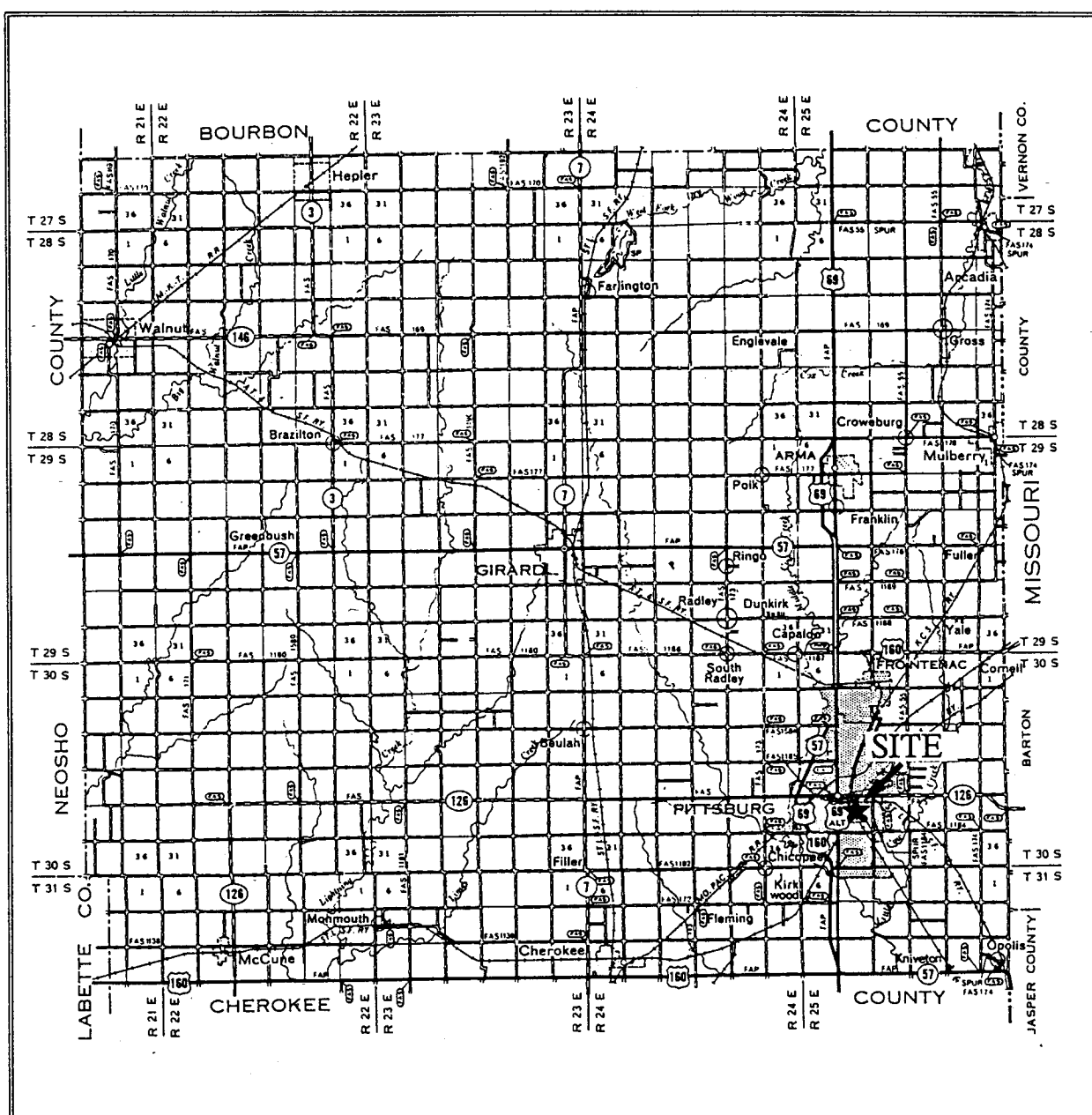
The concentration of lead levels from the surface material presents a potential for airborne transport of potentially hazardous particulate matter. This potential extends beyond the site boundaries. A direct contact threat exists for persons that may easily enter the site property.

The Robert Lanyon Zinc Works #3 smelter ceased operations more than 90 years ago. The waste piles have somewhat stabilized, however, the potential release of lead and cadmium at hazardous levels from the site exists. Currently, no viable PRPs have been identified. The Lanyon family is no longer living in the area. There appears to be no direct connection between current property owners and those who were owners at the time of the waste deposition.

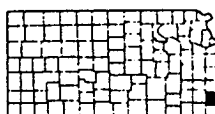
SECTION 7: REFERENCES

1. U.S. Geological Survey, 7.5-minute topographic quadrangle map of Pittsburg, Kansas, 1959 (Photorevised 1978).
2. U.S. Department of Agriculture, Soil Survey of Crawford County, Kansas, Donald E. Rott, et. al., Soil Conservation Service, 1973.
3. U.S. Department of Commerce, "The Climatic Atlas of the United States, 1983.
4. "Pittsburg Once Premier Zinc Smelter City of U.S.", from the Pittsburg Daily Headlight Newspaper, May 19, 1926.
5. Sanborn Insurance Company Maps of Pittsburg, Kansas, 1892, 1897, and 1906. Sanborn - Perris Map Company, New York, New York.
6. KDHE/BER, Southeast District Office, Chanute, Kansas, Pittsburg Zinc Site Files, 1993.
7. G. J. Stramel, The Hydraulic Properties of the Ordovician Rocks at Pittsburg, Kansas, Kansas Geological Survey Bulletin #127, 1957 Reports of Studies, Part 5, 1957.
8. KDHE/Bureau of Water(BoW), Pittsburg Kansas PWS Files, Topeka, Kansas 1993.
9. KDHE Bureau of Water, Kansas Water Data Base, 1991.
10. Kansas Department of Agriculture, Division of Water Resources, Four Mile Radius Surface and Groundwater Report, 1991.
11. KDHE/BER, Remedial Section Site Files, 1993.

SECTION 8: FIGURES AND TABLES



CRAWFORD COUNTY



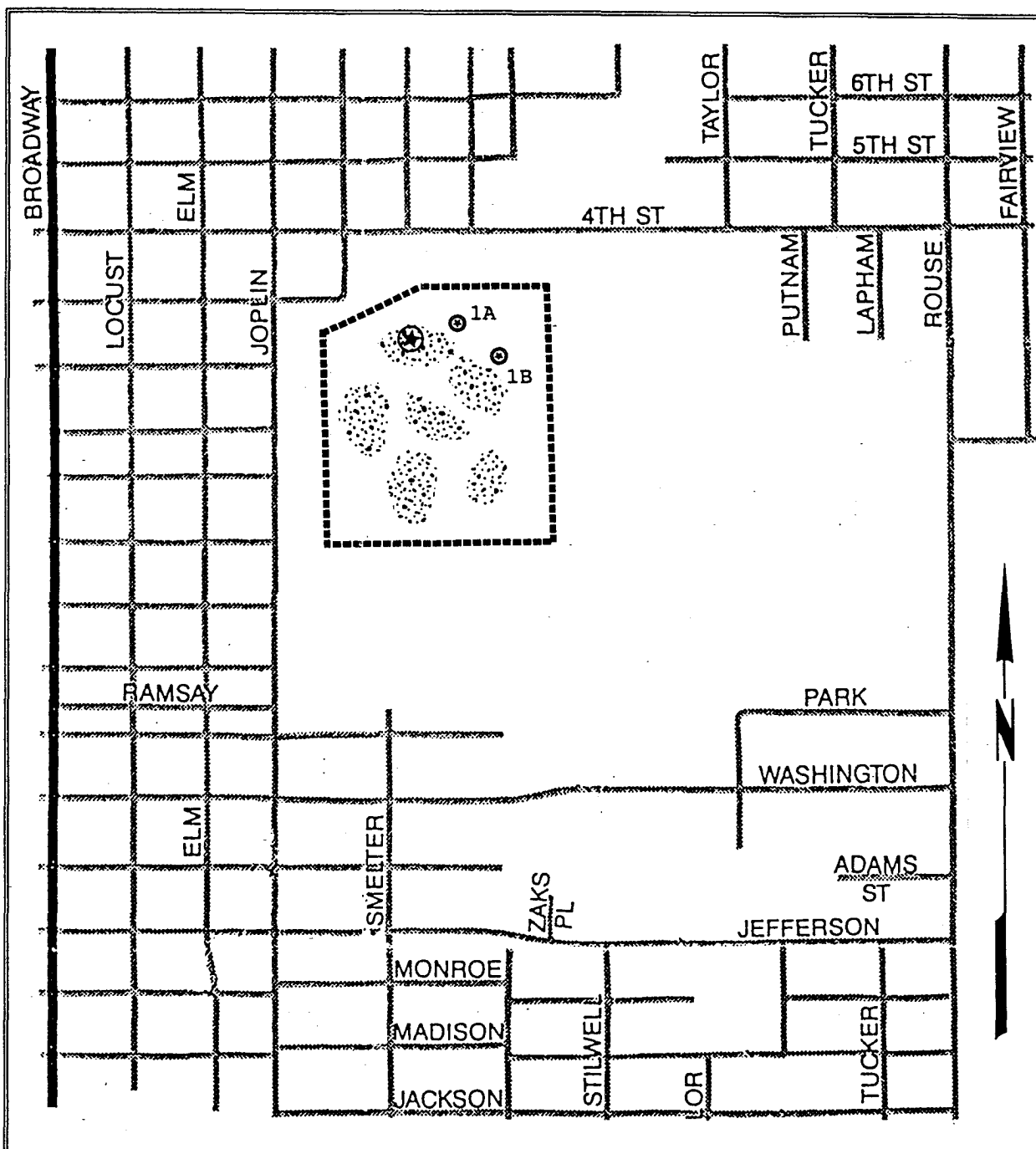
KANSAS

FIGURE 1
SITE LOCATION MAP

SCALE: 1 Inch = Approx. 4.75 Miles

SOURCE: State Highway Commission of Kansas, Department of Planning and Development, 1969.

PRELIMINARY ASSESSMENT OF THE PITTSBURG ZINC SMELTER
SEPTEMBER 1993

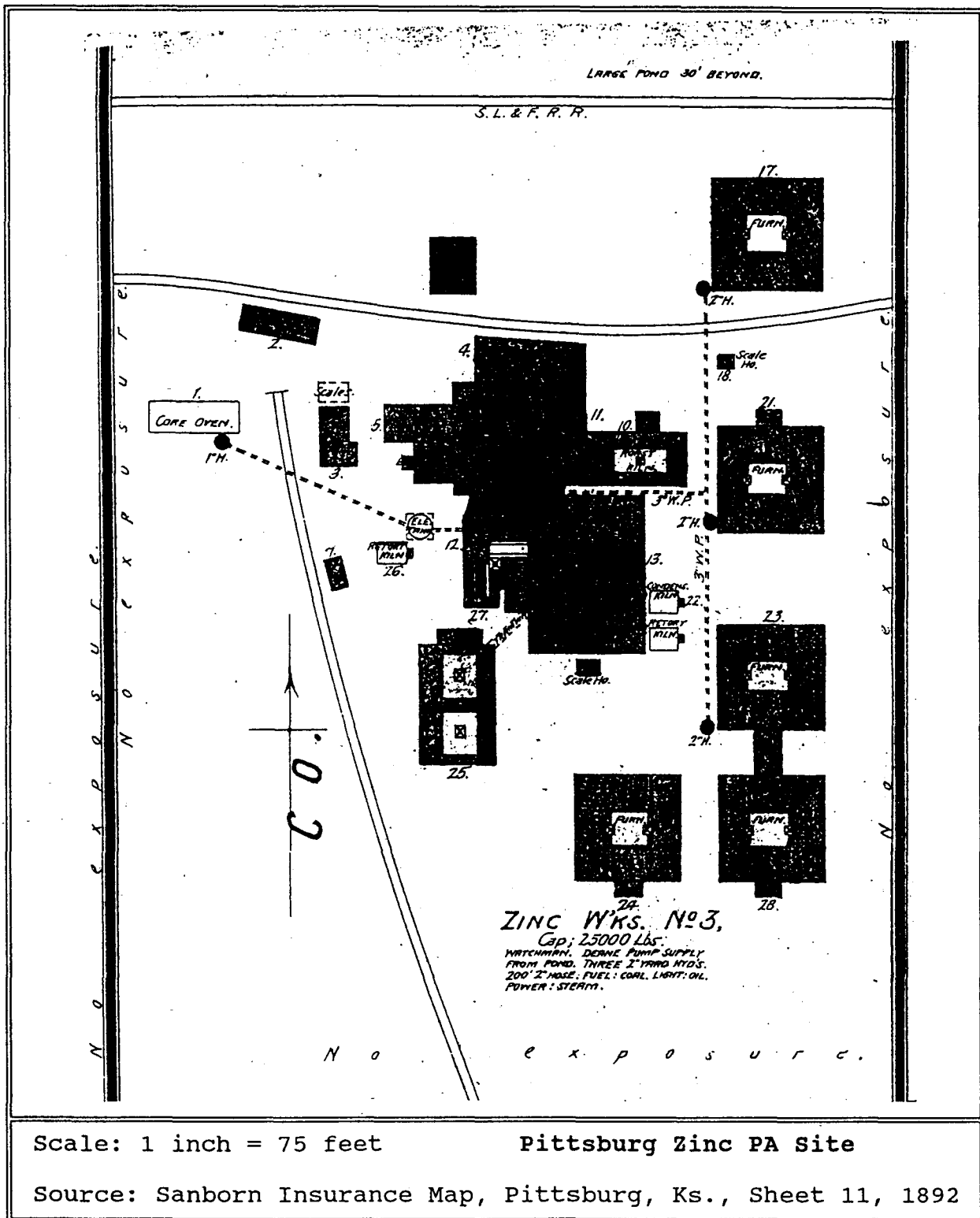


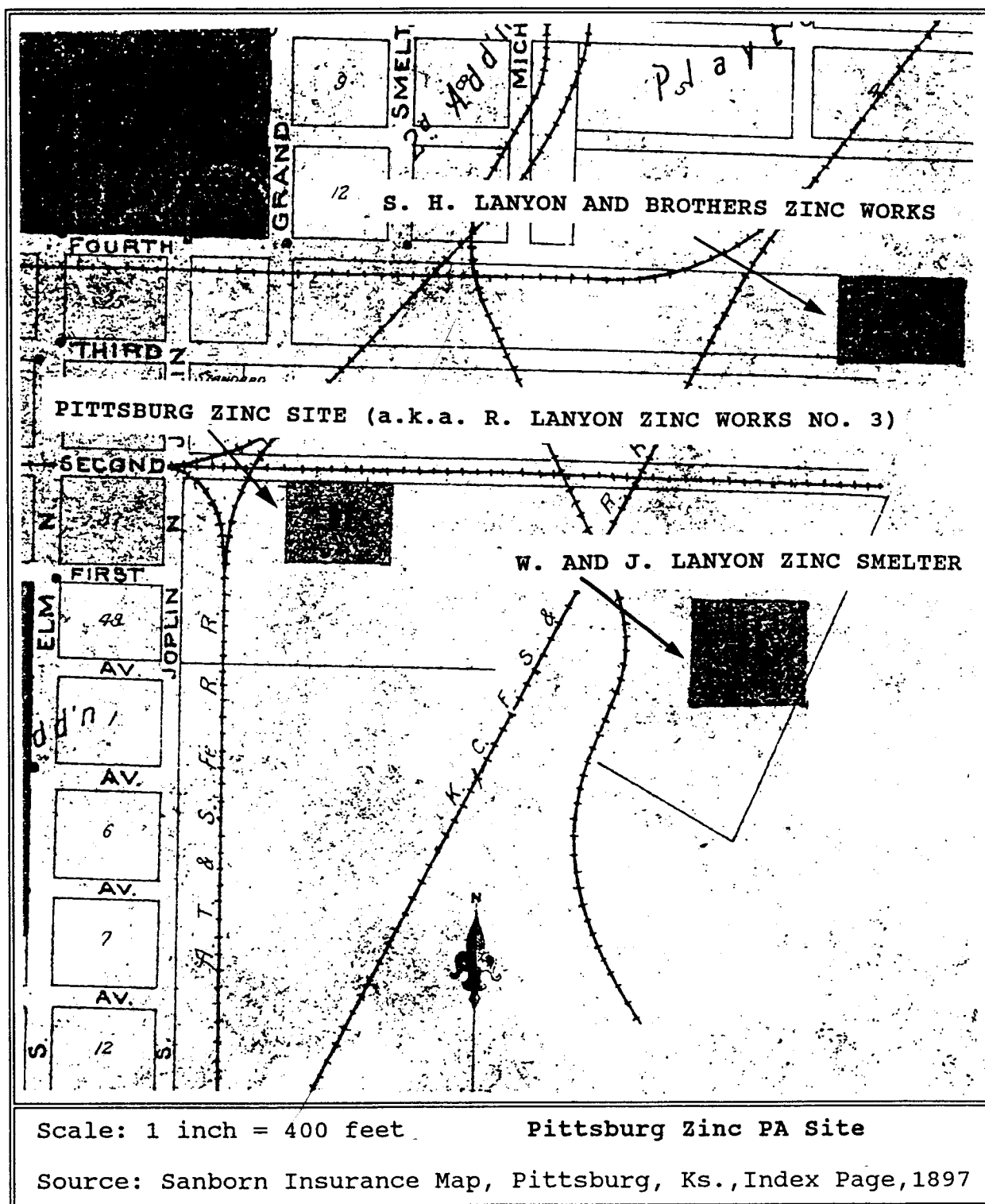
LEGEND: - - - Site boundary
 ••• Waste slag piles
 ⊕ Soil sample location
 ⊙ Water sample location

SCALE: 1 Inch = approx. 950 Feet

SOURCE: Blake Publishing Company, 1991.
 KDHE/BER Pittsburgh Zinc Smelter Site Files, 1987.

FIGURE 2
 SAMPLE LOCATION MAP

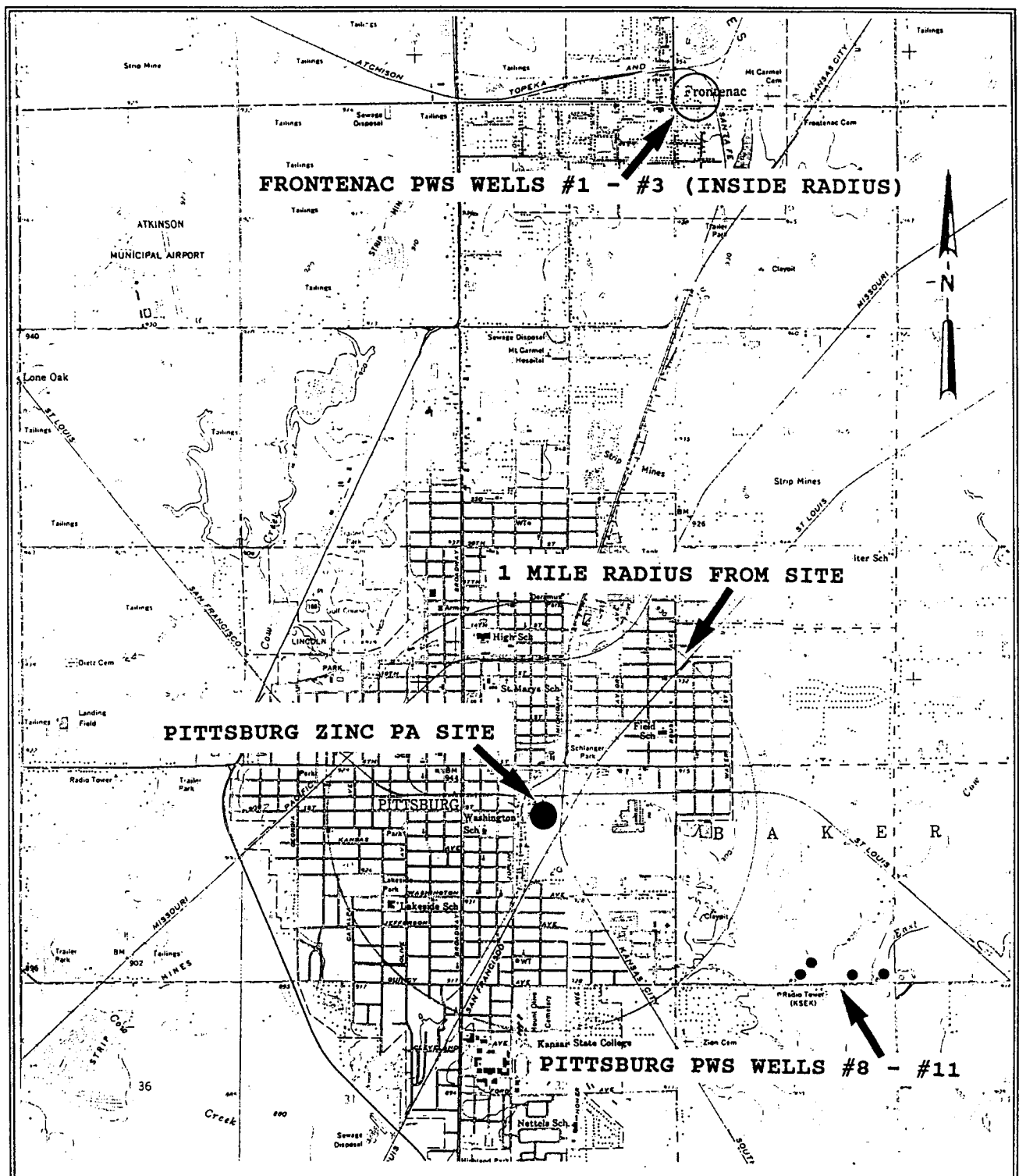




Prepared by the KDHE/BER

September 1993

Figure 4: Smelter Locations Map - Pittsburgh Zinc Site



Scale: 1 inch= 3500 feet

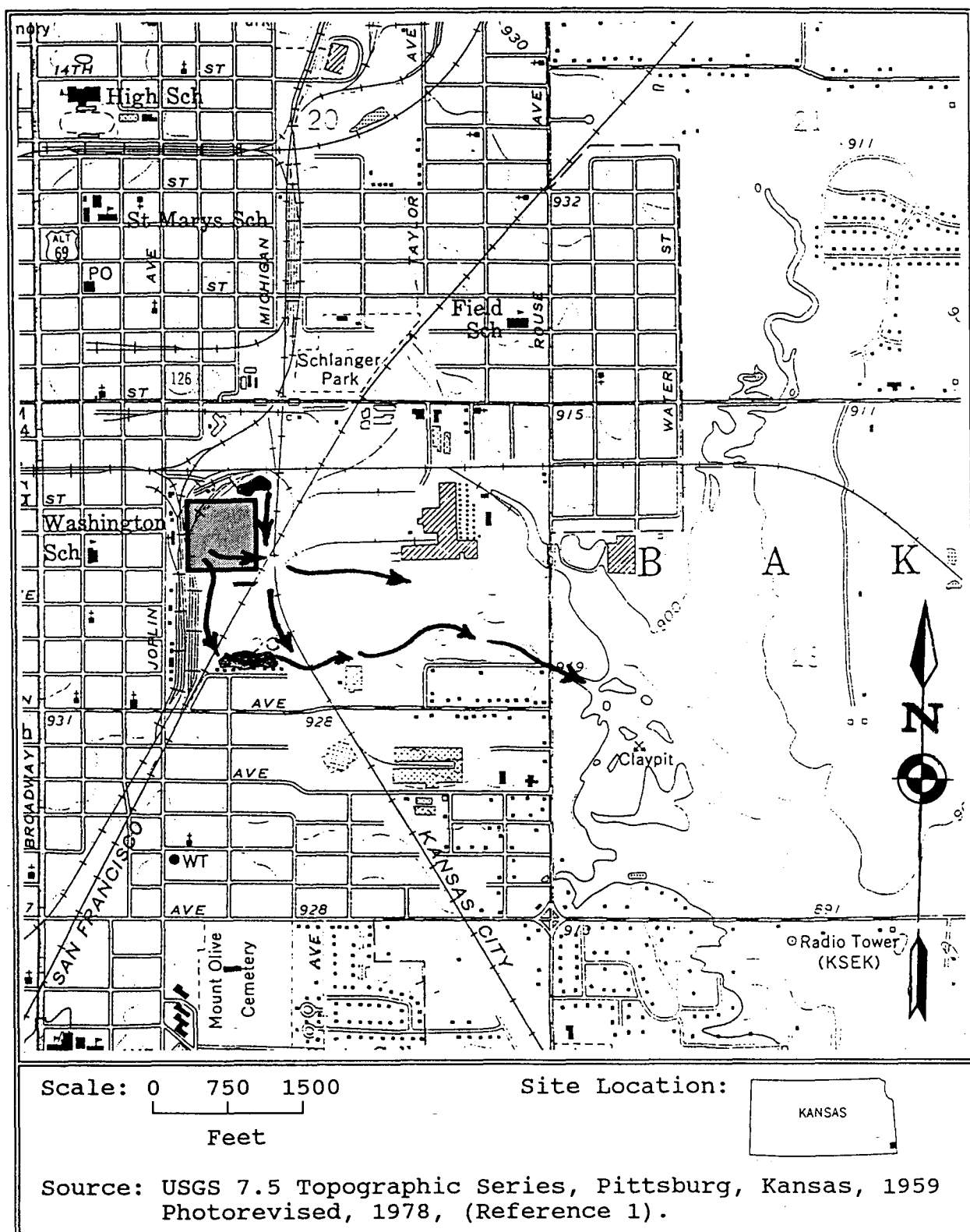
PITTSBURG ZINC PA SITE

Source: USGS 7.5' Topographic Map, Pittsburg, Kansas 1978

Prepared by the KDHE/BER

June 1994

FIGURE 5: PITTSBURG AND FRONTENAC PWS WELLS LOCATION MAP



Prepared by KDHE/BER

June 1994

FIGURE 6: SURFACE WATER PATHWAY ROUTE - PITTSBURG ZINC PA SITE

TABLE 1
SOIL AND SURFACE WATER ANALYTICAL RESULTS
PITTSBURG ZINC SITE
PITTSBURG, KANSAS
JUNE, 1987

Sample Identification from Pittsburg Zinc Site	Contaminants	
	Lead	Cadmium
Soil #1 (Total Metals Analysis)	3759.000 mg/kg	41.997 mg/kg
Soil #1 (EP Toxicity Analysis)	0.110 mg/l	0.117 mg/l
Surface Water 1A (Unfiltered)	0.010 mg/l	ND
Surface Water 1B (Unfiltered)	NA	NA

Source: KDHE/BER Southeast District Office Pittsburg Site Files

Abbreviations: mg/kg = milligrams per kilogram

mg/l = milligrams per liter

ND = Compounds not Detected

NA = Not Analyzed

	Thickness, feet	Depth, feet
PENNSYLVANIAN SYSTEM		
Soil and fill	5	5
Clay, yellow	20	25
Shale, gray, trace of coal	15	40
Shale, gray, trace of coal, pyrite	10	50
Shale, gray, trace of coal	50	100
Shale, gray	10	110
Shale, gray, trace of coal	10	120
Shale, gray	15	135
Shale, gray, trace of coal	5	140
Shale, gray	45	185
Shale, gray, pyrite	5	190
Shale, gray	50	240
MISSISSIPPIAN SYSTEM		
Shale, gray, cherty	10	250
Limestone, gray, gray shale, and chert	20	270
Limestone, gray	10	280
Limestone, gray, cherty	10	290
Limestone, gray, containing pyrite and glauconite	80	370
Limestone, gray, cherty	5	375
Dolomite, gray, cherty	25	400
Dolomite, gray, containing pyrite and glauconite	25	425
Dolomite, gray, cherty	5	430
Limestone, gray, and gray dolomite, cherty ..	10	440
Limestone, gray, and gray dolomite	10	450
Limestone	10	460
Limestone, cherty	85	545
Limestone, gray	10	555
Shale, gray, calcareous	20	575
Limestone, gray	15	590
Limestone, gray, containing pyrite and limonite	10	600
ORDOVICIAN SYSTEM		
Cotter and Jefferson City dolomites, undifferentiated		
Dolomite, gray, containing limonite	15	615
Dolomite, gray, cherty	20	635
Dolomite, gray; limonite	35	670
Dolomite, gray, cherty	135	805
Dolomite, gray	25	830
Dolomite, gray, cherty	85	915
Dolomite, gray	10	925
Dolomite, gray, sandy	10	935
Dolomite, gray	30	965
Dolomite, gray, cherty	10	975
Roubidoux dolomite		
Dolomite, gray, sandy	10	985
Sand, medium, white	15	1,000
Shale, dark gray	5	1,005
Dolomite, gray	30	1,035
Dolomite, gray, sandy	10	1,045
Dolomite, gray, sandy, cherty	5	1,050
Gasconade dolomite and Van Buren formation, undifferentiated		
Dolomite, gray	25	1,075
Dolomite, gray, cherty	158	1,233
Total depth		1,233

Pittsburg Zinc Preliminary Assessment Site
Source: KGS Bulletin #127, 1957 Reports of Studies, (Ref. 7)

Prepared by the KDHE/BER

September 1993

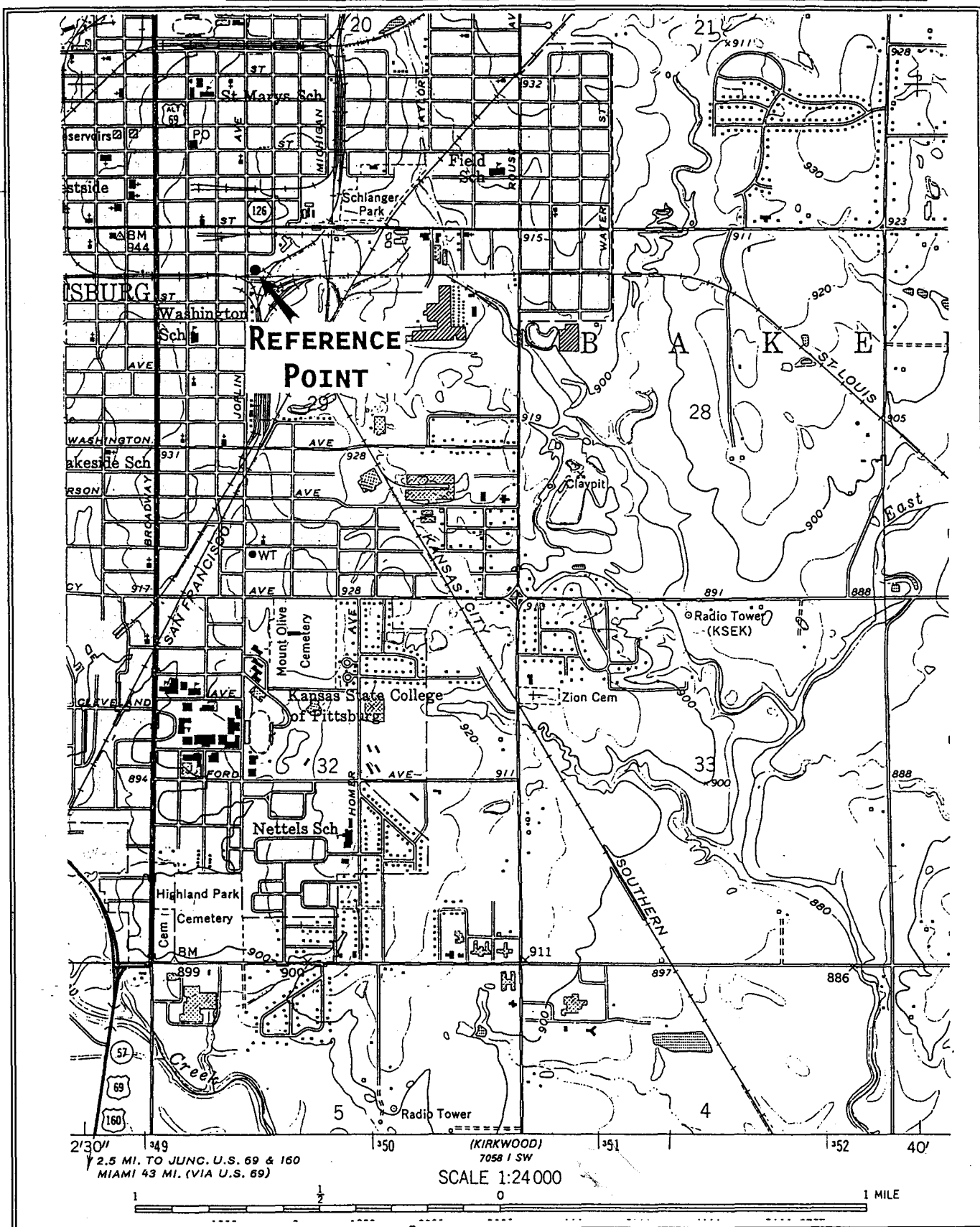
Table 2: Log of Pittsburg PWS Well #7

APPENDIX A
LATITUDE AND LONGITUDE WORKSHEETS
PITTSBURG ZINC PA SITE
PITTSBURG, KANSAS
SEPTEMBER, 1993

DATE: MARCH 2, 1993

SITE NAME: PITTSBURG ZINC

NUMBER



TOPOGRAPHIC MAP QUADRANGLE NAME: PITTSBURG, KANSAS

SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 37° 22' 30" LONGITUDE: 94° 40' 00"

APPENDIX B

POTENTIAL HAZARDOUS WASTE SITE PA FORM

PITTSBURG ZINC PA SITE

PITTSBURG, KANSAS

SEPTEMBER, 1993

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM		IDENTIFICATION			
State: KS		CERCLIS Number:			
CERCLIS Discovery Date:					
1. General Site Information					
Name: Pittsburg Zinc		Street Address: 2nd and Joplin St.			
City: Pittsburg	State: KS	Zip Code: 66762	County: Crawford	Co. Code: 019	Cong. Dist: 02
Latitude: 37 24' 33.5"	Longitude: 94 42' 0.0"	Approx. Area of Site: 20 acres	Status of Site: Not Specified		
2. Owner/Operator Information					
Owner: Multiple		Operator: Multiple			
Street Address: NA		Street Address: NA			
City: Pittsburg		City: Pittsburg			
State: KS	Zip Code: 66762	Telephone:	State: KS	Zip Code: 66762	Telephone:
Type of Ownership: Private		How Initially Identified: State/Local Program			

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM		IDENTIFICATION	
		State: KS	CERCLIS Number:
		CERCLIS Discovery Date:	
3. Site Evaluator Information			
Name of Evaluator: Danny C. Cooper		Agency/Organization: KDHE/BER	Date Prepared:
Street Address: Bldg. 740 Forbes Field		City: Topeka	State: KS
Name of EPA or State Agency Contact: Jim Alldritt		Telephone: 913-296-1674	
Street Address: Bldg. 740 Forbes Field		City: Topeka	State: KS
4. Site Disposition (for EPA use only)			
Emergency Response/Removal Assessment Recommendation: No	CERCLIS Recommendation: Higher Priority SI	Signature:	
Date:	Date:	Name:	
		Position:	

<p>POTENTIAL HAZARDOUS</p> <p>WASTE SITE</p> <p>PRELIMINARY ASSESSMENT FORM</p>		<p>IDENTIFICATION</p> <hr/> <p>State: CERCLIS Number:</p> <p>KS </p> <hr/> <p>CERCLIS Discovery Date:</p>	
<p>5. General Site Characteristics</p>			
<p>Predominant Land Uses Within 1 Mile of Site:</p> <p>Industrial</p> <p>Commercial</p> <p>Residential</p>	<p>Site Setting:</p> <p>Urban</p>	<p>Years of Operation:</p> <p>Beginning Year: 1897</p> <p>Ending Year: 1918</p>	
<p>Type of Site Operations:</p> <p>Mining</p> <p>Coal</p> <p>Other:</p> <p>Zinc Smelters</p>		<p>Waste Generated:</p> <p>Onsite</p> <hr/> <p>Waste Deposition Authorized By: Former Owner</p> <hr/> <p>Waste Accessible to the Public</p> <p>Yes</p> <hr/> <p>Distance to Nearest Dwelling, School, or Workplace:</p> <p>0 Feet</p>	
<p>6. Waste Characteristics Information</p>			
<p>Source Type</p> <p>Contaminated soil</p>	<p>Quantity</p> <p>2.00e+01 acres</p>	<p>Tier</p> <p>A</p>	<p>General Types of Waste:</p> <p>Metals</p> <hr/> <p>Physical State of Waste as Deposited</p> <p>Solid</p>
<p>Tier Legend</p> <p>C = Constituent W = Wastestream</p> <p>V = Volume A = Area</p>			

<p>POTENTIAL HAZARDOUS</p> <p>WASTE SITE</p> <p>PRELIMINARY ASSESSMENT FORM</p>		<p>IDENTIFICATION</p> <hr/> <p>State: CERCLIS Number:</p> <p>KS </p> <hr/> <p>CERCLIS Discovery Date:</p>	
<p>7. Ground Water Pathway</p>			
<p>Is Ground Water Used for Drinking Water Within 4 Miles:</p> <p>No</p>	<p>Is There a Suspected Release to Ground Water:</p> <p>No</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p>	
<p>Type of Ground Water Wells Within 4 Miles:</p> <p>Municipal</p>	<p>Have Primary Target Drinking Water Wells Been Identified: No</p>	<p>0 - 1/4 Mile</p>	<p>0</p>
		<p>>1/4 - 1/2 Mile</p>	<p>0</p>
		<p>>1/2 - 1 Mile</p>	<p>0</p>
<p>Depth to Shallowest Aquifer:</p> <p>1000 Feet</p>		<p>>1 - 2 Miles</p>	<p>23424</p>
		<p>>2 - 3 Miles</p>	<p>1229</p>
<p>Karst Terrain/Aquifer Present:</p> <p>No</p>	<p>Nearest Designated Wellhead Protection Area:</p> <p>Underlies Site</p>	<p>>3 - 4 Miles</p>	<p>2440</p>
		<p>Total</p>	<p>27093</p>

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM		IDENTIFICATION	
		State: KS	CERCLIS Number:
		CERCLIS Discovery Date:	
8. Surface Water Pathway		Part 1 of 4	
Type of Surface Water Draining Site and 15 Miles Downstream: Stream Pond Other: Strip Pits	Shortest Overland Distance From Any Source to Surface Water: 3200 Feet 0.6 Miles		
Is there a Suspected Release to Surface Water: Yes	Site is Located in: >10 yr - 100 yr floodplai		
8. Surface Water Pathway		Part 2 of 4	
Drinking Water Intakes Along the Surface Water Migration Path: No			
Have Primary Target Drinking Water Intakes Been Identified: No			
Secondary Target Drinking Water Intakes: None			

IDENTIFICATION	
POTENTIAL HAZARDOUS	State: CERCLIS Number:
WASTE SITE	KS
PRELIMINARY ASSESSMENT FORM	CERCLIS Discovery Date:

8. Surface Water Pathway Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: Yes

Secondary Target Fisheries:

Fishery Name	Water Body Type/Flow(cfs)
East Cow Creek	minimal stream/ <10

8. Surface Water Pathway Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) No

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:

None

Other Sensitive Environments Along the Surface Water Migration Path: Yes

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:

Water Body/Flow(cfs)	Sensitive Environment Type
minimal stream/ <10	Habitat used by Fed. des.species

<p>POTENTIAL HAZARDOUS</p> <p>WASTE SITE</p> <p>PRELIMINARY ASSESSMENT FORM</p>	<p style="text-align: center;">IDENTIFICATION</p> <hr/> <p>State: CERCLIS Number: KS </p> <hr/> <p>CERCLIS Discovery Date:</p>
---	---

9. Soil Exposure Pathway

<p>Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: Yes</p> <p>Total Resident Population: 50</p>	<p>Number of Workers Onsite: 1 - 100</p>
--	--

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: Yes

Terrestrial Sensitive Environments:

Habitat used by Federal designated endangered/threatened species

10. Air Pathway

<p>Total Population on or Within:</p> <table style="width: 100%;"> <tr> <td style="width: 150px;">Onsite</td> <td style="text-align: right;">0</td> </tr> <tr> <td>0 - 1/4 Mile</td> <td style="text-align: right;">459</td> </tr> <tr> <td>>1/4 - 1/2 Mile</td> <td style="text-align: right;">1147</td> </tr> <tr> <td>>1/2 - 1 Mile</td> <td style="text-align: right;">2389</td> </tr> <tr> <td>>1 - 2 Miles</td> <td style="text-align: right;">13904</td> </tr> <tr> <td>>2 - 3 Miles</td> <td style="text-align: right;">9148</td> </tr> <tr> <td>>3 - 4 Miles</td> <td style="text-align: right;">1929</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">28976</td> </tr> </table>	Onsite	0	0 - 1/4 Mile	459	>1/4 - 1/2 Mile	1147	>1/2 - 1 Mile	2389	>1 - 2 Miles	13904	>2 - 3 Miles	9148	>3 - 4 Miles	1929	Total	28976	<p>Is There a Suspected Release to Air: Yes</p> <hr/> <p>Wetlands Located</p> <p style="margin-left: 40px;">Within 4 Miles of the Site: No</p> <hr/> <p>Other Sensitive Environments Located</p> <p style="margin-left: 40px;">Within 4 Miles of the Site: Yes</p>
Onsite	0																
0 - 1/4 Mile	459																
>1/4 - 1/2 Mile	1147																
>1/2 - 1 Mile	2389																
>1 - 2 Miles	13904																
>2 - 3 Miles	9148																
>3 - 4 Miles	1929																
Total	28976																

Sensitive Environments Within 1/2 Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area(acres)
0 - 1/4	Habitat used by Fed. des.species
>1/4 - 1/2	Habitat used by Fed. des.species

APPENDIX C

KDHE ORGANIC CHEMISTRY LAB - GC/MS ANALYSIS REPORTS

PITTSBURG ZINC PRELIMINARY ASSESSMENT SITE

PITTSBURG, KANSAS

SEPTEMBER, 1993

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
LABORATORY SERVICES AND RESEARCH
INORGANIC CHEMISTRY LABORATORY
TOPEKA, KANSAS 66620-8420

JUL 16 1987

RESULTS OF LABORATORY ANALYSIS

REPORT TO: BILL THORNTON--KDHE, CHANUTE
ADDRESS:

LAB NUMBER: 702773PT
ACCOUNT CODE: WM
MATRIX: SOIL

LOCALITY: 1ST. & MICHIGAN PITTSBURG

TIME COLLECTED: ****

COLLECTED BY: BILL THORNTON

DATE COLLECTED: - -

SAMPLE ID: SENW293025E 2

DATE-RECEIVED: 6-11-87

COMMENTS: EP TOXICITY ON 702668PT

DATE REPORTED: 7-10-87

* * * * *

RESULTS EXPRESSED IN MILLIGRAMS/LITER

TOTAL HARD.	NA	PH	NA	IRON	NA
(CACO3)		TURBIDITY	NA	MANGANESE	NA
CALCIUM	NA	SPECIFIC COND.	NA	ARSENIC	NA
MAGNESIUM	NA	T. DISSOLVED SOLIDS	NA	BARIUM	NA
SODIUM	NA	TOTAL PHOSPHORUS (P)	NA	CADMIUM	0.117 .00
POTASSIUM	NA	SILICA (SIC2)	NA	CHROMIUM	NA
		BORON	NA	COPPER	NA
TOTAL ALK.	NA	DISSOLVED OXYGEN	NA	LEAD	0.110 .00
(CACO3)		BOD	NA	MERCURY	NA
CHLORIDE	NA	COD	NA	SELENIUM	NA
SULFATE	NA	AMMONIA (N)	NA	SILVER	NA
NITRATE (N)	NA	T. SUS. SOLIDS	NA	ZINC	NA
FLUORIDE	NA			ALUMINUM	NA
				BERYLLIUM	NA
CYANIDES	NA	CARBONATE HARDNESS	NA	NICKEL	NA
OIL/GREASE	NA	NON-CARBONATE HARD.	NA	ANTIMONY	NA
PHENOLS	NA	NAHCO3 ALKALINITY	NA	THALLIUM	NA
TDP	NA	M3AS	NA		
SULFIDE	NA	FLASH POINT	NA		

CHEMIST: FD

NA - NOT ANALYZED

ND - NOT DETECTED

* * * * *

COPY TO: FILE

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
LABORATORY SERVICES AND RESEARCH
INORGANIC CHEMISTRY LABORATORY
TOPEKA, KANSAS 66620-8420

RESULTS OF LABORATORY ANALYSIS

JUL 6 1987

REPORT TO: BILL THORNTON
ADDRESS: KDHE PO BOX 888
CHANUTE

KS 66720

LAB NUMBER: 702668PT
ACCOUNT CODE: WM
MATRIX: SOIL

LOCALITY: 1ST. & MICHIGAN PITTSBURG, KS.

TIME COLLECTED: ****

COLLECTED BY: BILL THORNTON

DATE COLLECTED: - -

SAMPLE ID: SEVW293025E 2

DATE-RECEIVED: 6-11-87

COMMENTS: POSSIBLE LEAD & SINK SMELTER SITE.
ACID LEACH; EP TOXICITY PENDING

DATE REPORTED: 7- 2-87

* * * * *

RESULTS EXPRESSED IN MILLIGRAMS/KILOGRAM

TOTAL HARD. (CACO ₃)	NA	PH	NA	IRON	NA
CALCIUM	NA	TURBIDITY	NA	MANGANESE	NA
MAGNESIUM	NA	SPECIFIC COND.	NA	ARSENIC	10.700
SODIUM	NA	T. DISSOLVED SOLIDS	NA	BARIUM	96.07
POTASSIUM	NA	TOTAL PHOSPHORUS (P)	NA	CADMIUM	41.997
		SILICA (SiO ₂)	NA	CHROMIUM	9.09
		BORON	NA	COPPER	126.00
TOTAL ALK. (CACO ₃)	NA	DISSOLVED OXYGEN	NA	LEAD	3759.000
CHLORIDE	NA	BOD	NA	MERCURY	ND
SULFATE	NA	COD	NA	SELENIUM	ND
NITRATE (N)	NA	AMMONIA (N)	NA	SILVER	44.991
FLUORIDE	NA	T. SUS. SOLIDS	NA	ZINC	9007.70
				ALUMINUM	NA
				BERYLLIUM	NA
CYANIDES	NA	CARBONATE HARDNESS	NA	NICKEL	NA
OIL/GREASE	NA	NON-CARBONATE HARD.	NA	ANTIMONY	NA
PHENOLS	NA	NAHCO ₃ ALKALINITY	NA	THALLIUM	NA
TDP	NA	MBAS	NA		
SULFIDE	NA	FLASH POINT	NA		

CHEMIST: FD

NA - NOT ANALYZED

ND - NOT DETECTED

* * * * *

COPY TO: FILE

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
LABORATORY SERVICES AND RESEARCH
INORGANIC CHEMISTRY LABORATORY
TOPEKA, KANSAS 66620-8420

JUL 6 1987

RESULTS OF LABORATORY ANALYSIS

REPORT TO: BILL THORNTON---KDHE CHANUTE
ADDRESS:

LAB NUMBER: 702670PT

ACCOUNT CODE: WP

MATRIX: WATER

LOCALITY: WASHINGTON & MICHIGAN PITTSBURG, KS 66726 TIME COLLECTED: 1150

COLLECTED BY: BILL THORNTON DATE COLLECTED: 6-10-87

SAMPLE ID: SENW293025E13 DATE-RECEIVED: 6-11-87

COMMENTS: POSSIBLE LEAD & ZINC SMELTER SITE. DATE REPORTED: 7- 1-87

* * * * *

RESULTS EXPRESSED IN MILLIGRAMS/LITER

TOTAL HARD.	NA	PH	NA	IRON	3.41
(CACO3)		TURBIDITY	NA	MANGANESE	1.59
CALCIUM	NA	SPECIFIC COND.	NA	ARSENIC	0.003
MAGNESIUM	NA	T. DISSOLVED SOLIDS	NA	BARIUM	0.03
SODIUM	NA	TOTAL PHOSPHORUS (P)	NA	CADMIUM	ND
POTASSIUM	NA	SILICA (SI02)	NA	CHROMIUM	ND
		BORON	NA	COPPER	ND
TOTAL ALK.	NA	DISSOLVED OXYGEN	NA	LEAD	0.010
(CACO3)		BOD	NA	MERCURY	NA
CHLORIDE	NA	COD	NA	SELENIUM	ND
SULFATE	NA	AMMONIA (N)	NA	SILVER	0.005
NITRATE (N)	NA	T. SUS. SOLIDS	NA	ZINC	0.61
FLUORIDE	NA			ALUMINUM	NA
				BERYLLIUM	NA
CYANIDES	NA	CARBONATE HARDNESS	NA	NICKEL	NA
OIL/GREASE	NA	NON-CARBONATE HARD.	NA	ANTIMONY	NA
PHENOLS	NA	NAHCO3 ALKALINITY	NA	THALLIUM	NA
TDP	NA	MBAS	NA		
SULFIDE	NA	FLASH POINT	NA		

CHEMIST: FD

NA - NOT ANALYZED

ND - NOT DETECTED

* * * * *

COPY TO: FILE

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
LABORATORY SERVICES AND RESEARCH
INORGANIC CHEMISTRY LABORATORY
TOPEKA, KANSAS 66620-8420

JUL 2 1987

RESULTS OF LABORATORY ANALYSIS

REPORT TO: BILL THORNTON--KDHE CHANUTE
ADDRESS:

LAB NUMBER: 702671PT
ACCOUNT CODE: WP
MATRIX: WATER

LOCALITY: 1ST & MICHIGAN PITTSBURG, KS. 66762 TIME COLLECTED: 1120
COLLECTED BY: BILL THORNTON DATE COLLECTED: 6-10-87
SAMPLE ID: SENW293025E1A DATE-RECEIVED: 6-11-87
COMMENTS: POSSIBLE LEAD & ZINC SMELTER AREA. DATE REPORTED: 6-30-87

* * * * *

RESULTS EXPRESSED IN MILLIGRAMS/LITER

TOTAL HARD.	244	PH	NA	IRON	1.04
(CACO3)		TURBIDITY	NA	MANGANESE	0.45
CALCIUM	83.5	SPECIFIC COND.	NA	ARSENIC	NA
MAGNESIUM	8.7	T. DISSOLVED SOLIDS	NA	BARIUM	NA
SODIUM	14.9	TOTAL PHOSPHORUS (P)	NA	CADMIUM	NA
POTASSIUM	NA	SILICA (SIO2)	NA	CHROMIUM	NA
		BORON	NA	COPPER	NA
TOTAL ALK.	143	DISSOLVED OXYGEN	NA	LEAD	NA
(CACO3)		BOD	NA	MERCURY	NA
CHLORIDE	10.0	COD	NA	SELENIUM	NA
SULFATE	92	AMMONIA (N)	NA	SILVER	NA
NITRATE (N)	0.40	T. SUS. SOLIDS	NA	ZINC	NA
FLUORIDE	0.39			ALUMINUM	NA
				BERYLLIUM	NA
CYANIDES	NA	CARBONATE HARDNESS	143.0	NICKEL	NA
OIL/GREASE	NA	NON-CARBONATE HARD.	NA	ANTIMONY	NA
PHENOLS	NA	NAHCO3 ALKALINITY	NA	THALLIUM	NA
TDP	NA	M9AS	NA		
SULFIDE	NA	FLASH POINT	NA		

CHEMIST: FD NA - NOT ANALYZED ND - NOT DETECTED

* * * * *

COPY TO: FILE

APPENDIX D

SITE PHOTOGRAPHIC RECORD

PITTSBURG ZINC PRELIMINARY ASSESSMENT SITE

PITTSBURG, KANSAS

SEPTEMBER, 1993

Photo 1

Date September 9, 1993
Time 2:15 p.m.
Location Pittsburg Zinc Site
Direction viewing west
Photographer J. Alldritt
Comments
 Pile of smelter debris
 showing broken retort,
 bricks, and typical
 slag materials.



Photo 2

Date September 9, 1993
Time 1:45 p.m.
Location Pittsburg Zinc Site
Direction viewing northeast
Photographer J. Alldritt
Comments
 Solid waste, primarily
 construction debris
 (note concrete), buckets,
 and typical household
 trash. Limited amount
 of trash being dumped
 in the northeast
 area of the site.



Photo 3

Date September 9, 1993

Time 2:00 p.m.

Location Pittsburg Zinc Site

Direction viewing southeast

Photographer J. Alldritt

Comments

View of typical

slag residue pile of

concentrated smelter

waste. Depressed (lower)

area background probable

pond area for zinc

works.



Photo 4

Date September 9, 1993

Time 1:30 p.m.

Location Pittsburg Zinc Site

Direction viewing north

Photographer J. Alldritt

Comments

Zinc smelter waste

pile at northcentral area

of site. Pile is char-

acterized by hard melted

ore appearance.



Photo 5

Date September 9, 1993
Time 2:20 p.m.
Location Pittsburg Zinc Site
Direction viewing east
Photographer J. Alldritt
Comments Typical slag pile on
site. Lush grasses
growing in the vicinity
shows how supportive
and fertile local
soils can be.



Photo 6

Date September 9, 1993
Time 2:30 p.m.
Location Pittsburg Zinc Site
Direction viewing south
Photographer J. Alldritt
Comments Slag waste pile showing
the inability of
vegetative support.
Piles of slag range from
fine granular particles
to large consolidated
slag (see photo #4).

